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A REVIEW OF THE SUBGENERA STENOCANTHARIS GISTEL AND NEOCYCHRUS ROESCHKE OF THE GENUS SCAPHINOTUS DEJEAN (COLEOPTERA, CARABIDAE)

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Scaphinotus, Subgenus *Stenocantharis* Gistel

The subgenus *Stenocantharis* according to Csiki,[1] was established by Gistel[2] in 1857, yet apparently overlooked by most subsequent workers for *Pemphus* which Motschulsky[3] proposed in 1865, has been generally used for defining the subgenus until the present time. According to Roeschke,[4] it has the following characteristics: head infrequently punctate, clypeus without lateral grooves, the upper inner margin of the emargination of the labrum confined to it and situated anterior to the clypeus, the base of the emargination with four setae, the genae dilated in front of the eyes forming a prominent ridge and with a somewhat deep incisure, the lacinae of the maxillae furnished with long, strong spines or teeth, the labial palpi with more than two setae, the pronotum with but one mar-

[1] Coleoptorum Catalogus, Pars 92, Carabidae: Carabinae II, p. 322, 1927.

[2] Achthundertzwanzig neue wirbellose Thiere, p. 92, 1857.

[3] Bull. Soc. Nat. Mosc., XXXVIII, II, p. 312, 1865.

[4] Ann. Mus. Nat. Hung., V, pp. 99–277, 1907.

ginal seta which is at its middle, the episternum and epimeron of the prothorax distinctly separated by a suture, the prosternal process deflexed at apex, the elytral epipleura smooth or sparsely punctate, the epipleural groove dilated in front of the elytral apex, the anterior face of the front and generally the middle femora also without setigerous punctures beneath, the middle coxae with marginal setae, the upper side of tarsi with short, erect hairs, the anterior tarsi dilated in the males, and the third ventral segment with setigerous punctures. From the subgenus *Brennus* Mots., to which it is most closely related, it is separated by having the anterior femora without setigerous punctures beneath and by having the lacinae of the maxillae furnished with long, strong spines, instead of the short teeth and longer setae or silky hair of the latter. The last-mentioned character is, however, a most difficult one to evaluate.

Stenocantharis is restricted in distribution to the heavily forested coastal or wet belt of the northwestern part of North America, ranging along the coast from southeastern Alaska to middle Sonoma County in California and extending inland in the north as far east as the Selkirks of British Columbia and the Cascades of Washington and northern Oregon while in California it is almost entirely confined to the dense coastal redwood forests. I consider that there is but one species in the subgenus, *angusticollis* (Mann.) and that all others which have been described, are either subspecies or as in the case of one, *opacus* Casey, a synonym. The distribution is more or less continuous from north to south, the geographical races gradually grading into each other. At the center of distribution of each subspecies, the forms are rather distinct and might easily pass as a good species but in intermediate areas between the subspecies, the forms are of an intermediate type and thus connecting links. I have collected throughout practically their entire area of distribution and my findings substantiate the above statements.

In this paper, I will discuss each subspecies, accentuating its essential and peculiar characteristics. The illustrations[5] which accompany it, will enable some of the diagnostic features to be better visualized. Following the discussion of *Stenocantharis*, I will make a few remarks concerning *Scaphinotus* (*Brennus*) *johnsoni* Van Dyke, a peculiar species, still very rare, which is in a way an intermediate between the subgenus *Stenocantharis* and *Brennus*, though described in the latter subgenus and possessing its basic diagnostic characters.

[5] The illustrations are by Mrs. Freda Abernathy.

KEY TO SUBSPECIES OF STENOCANTHARIS ANGUSTICOLLIS (MANN.)

1. Prothorax with sides evenly arcuate in front and narrowed and gradually sinuate behind; elytra more or less rufous in color, with the striae and intervals more or less regular; the smooth shank of the first tarsal segment of the front tarsi in the males, about one-third the length of the segment ..... *angusticollis* (sens. str.)

   Entire insect a dull black color, except marginal groove of elytra 2

2. All structural characters as in *angusticollis* ..... **olympiae**

   Specimens larger, the prothorax either longer and narrower or very much expanded in front; the elytral intervals generally more or less irregular 3

3. Prothorax but little wider in front than behind; elytra gradually narrower from posterior third forwards, intervals sometimes quite irregular but generally with many rather poorly defined 4

   Prothorax widely expanded in front and with sides evenly rounded, especially in females; the elytra quite globose with the striae and intervals very irregular in females, less so in males, the marginal groove and punctures rarely metallic; male tarsi of front legs with papillose area limited to one-third of apical space on basal segment ..... *velutinus*

4. Prothorax little longer than broad, feebly angulate at sides anteriorly; male front tarsi with papillose area clothing the apical two thirds of the undersurface of first tarsal segment ..... *nigripennis*

   Prothorax evidently longer than broad, usually angulate at sides anteriorly; male front tarsi with papillose area clothing but one half of the under surface of first tarsal segment. *longipes*

Scaphinotus (*Stenocantharis*) *angusticollis* (Mannerheim)

(Plate I, Figure 1)

Cychrus angusticollis Mann. in Fisch. de Waldheim, Entomogr. Ross., II, p. 46, t. 46, f. 2, 1924; Bull. Soc. Nat. Mosc., XVI, p. 187, 1843; Fisch. de Waldheim, Ent. Ross., III, p. 142, 1828.

Cychrus angusticollis Dej., Spec. gen. Col., V, p. 526, 1831.

Cychrus angusticollis Lec., Trans. Amer. Ent. Soc., II, p. 60, 1868.

Cychrus angusticollis Horn, Trans. Amer. Ent. Co., VII, p. 175, 1878.

Pemphus angusticollis Casey, Ann. N. Y. Acad. Sc., IX, p. 339, 1897.

Scaphinotus (*Pemphus*) *angusticollis* Roesch., Ann. Mus. Nat. Hung., V, p. 122, 164, 1907.

Medium in size, elongate, dull black, the ventral surface more or less rufous, the elytra varying from a rusty red to a deep wine color, the head and pronotum with somewhat of a greenish or bluish metallic gloss, especially along the lateral sulci of the pronotum, and the lateral groove of the elytra a brilliant metallic green. Head elongate, feebly wrinkled, the clypeus smooth and with a medium groove in front, the supraorbital-antennal ridge well marked; antennae long and delicate, extending backwards beyond the middle of elytra; eyes moderately prominent. Prothorax cordate, slightly broader than long, the sides evenly arcuate in front, with side margins narrowly reflexed, somewhat more widely so towards base and the disk but little elevated, finely rugose, with a well impressed median longitudinal linear impression and anterior and posterior impressions well indicated, hind angles rounded. Elytra less than twice as long as broad and varying from elliptical in the males to slightly cordate in the more robust females, the disk feebly convex and with eighteen distinctly though feebly impressed entire striae to each elytron, each shallowly and more or less regularly punctured, the narrow intervals as a rule somewhat crenulated or sinuous; epipleura quite smooth though with a few shallow punctures. Hind coxal plates with anterior and posterior setae. Length 18–22 mm., breadth 6.5–9 mm.

Males with terminal segments of palpi broadly dilated and spoon shaped as usual; first three segments of front tarsi narrowly dilated and papillose beneath, the first with smooth basal shank about one-third the length of segment (Pl. I, Fig. 6).

The above-described beetle is the typical form of *angusticollis,* described according to the original description from Unalaska, Alaska. This locality I doubt, for the species is a species of the dense forests and there are no forests on Unalaska or on any of the other Aleutian Islands. Besides, I collected very extensively on that island during much of the summer of 1907, and could find no indication of it there nor have I ever seen a specimen from any of the Aleutian Islands. I believe that the type was collected at Sitka

where it is common. The typical form ranges from southeastern Alaska, Sitka, Cordova, Ketchikan, Prince of Wales Is., etc., south along the coast, through Vancouver Island, the British Columbia mainland, the northern islands of Puget Sound as San Juan, Orcus, etc., that part of the mainland of Washington between Puget Sound and the Cascades, south to the Columbia River and across into the portion of Oregon between the Willamette River and the Cascades, including Mt. Hood and Mt. Jefferson and Colton in the lowlands. The specimens on Mt. Rainier of the northern Cascades are a bit darker than the usual run. All forms of the species are more or less gregarious, often found in considerable numbers under the bark of dead trees. It travels at will over the floor of the forest, along the fallen logs, over the dense shrubbery and sometimes climbs the trunks of the great trees to a height of fifty or sixty feet. The beetles have a very strong and musty odor which often reveals their presence.

Scaphinotus (*Stenocantharis*) *angusticollis* **olympiae** new subspecies

Cychrus angusticollis var. *velutinus* Schwarz, Proc. Wash. Acad. Sci., II, p. 524, 1900.

When Roeschke published his monograph, he placed all of the more northern, non-Californian, black specimens under the name *nigripennis*. This is unfortunate for there are in reality two subspecies which according to the distribution as given by him, would fall under that name. As far as I can determine, the one that he more definitely described as *nigripennis* was the more southern subspecies though he more or less confused the two in his description.

The more northern subspecies which is confined in its purity to the Olympic Peninsula of Washington, I am calling *olympiae*. It differs primarily from the typical *angusticollis* by being entirely of a dull black color, even the marginal sulci of the pronotum and elytra have the greenish coloration much subdued. The prothorax is less expanded in front so that as a whole it is a bit longer than broad, and the elytra are somewhat more narrowed in front and the elytral intervals less sharply defined. The male tarsi are of the same type. The insects as a whole seem to be smaller in size and generally less robust.

Holotype male, allotype female (Nos. 5343, 5344, Mus. C. A. S. Ent.), from Sol Duc Hot Springs, Olympic Peninsula, Wash., June 22, 1936, collected by myself. Our Academy series of this race consists of over a hundred specimens, mainly from the following localities: Port Angeles, Lake Crescent, The Forks, Sol Duc Hot Springs,

the Olympic Hot Springs, Olympic Mts., Humptulips and Lake Quiniault, Wash. Other specimens as from Hoquiam, Wash., and from many areas farther north seem to be intermediates, less black and with a more normal prothorax, and so forth. This black phase of *angusticollis* seems to be limited to the very wet or coastal areas of Washington and the regions farther north. Until recent years, the entire Olympic Peninsula of Washington was more or less inaccessible hence specimens from there were uncommon in collections whereas specimens of what I consider to be the typical *nigripennis* from West Portland and neighboring areas to the west and southwest of it were well known, hence presumably what Roeschke described.

Scaphinotus (*Stenocantharis*) *angusticollis nigripennis* Roeschke

(Plate I, Figures 4, 7)

Scaphinotus (*Pemphus*) *angusticollis* var. *nigripennis* Roesch., Ann. Mus. Nat. Hung., V, pp. 165, 167, 1907.

Cychrus velutinus Lec., Trans. Ann. Ent. Soc., II, p. 60 (Part.), 1868.

Cychrus velutinus Horn., Trans. Ann. Ent. Soc., VII, p. 175 (Part.), 1878.

Pemphus velutinus Casey, Ann. N. Y. Acad. Sci., IX, p. 339, 1897.

This subspecies is in general larger than the preceding, with the prothorax but moderately dilated in front and with the sides straight and oblique behind, not sinuate, and the elytra with the striae less deeply impressed and generally more or less obliterated towards the suture and posteriorly, leaving the surface merely irregularly punctured. In extreme cases as in some of the larger females, practically the entire surface of the elytra is irregularly punctured and more or less granular laterally except for several well-marked and distinctly elevated intervals, which divide up the disk. In some cases, the apices of the elytra are distinctly prolonged giving them a caudate appearance. The males have the anterior tarsi long, but slightly dilated and with the first tarsal segment generally papillose beneath over the entire surface except the short basal shank which is about one quarter of its length (Pl. I, Fig. 7).

The subspecies occupies that portion of Oregon south of the Columbia River and west of the Willamette River, is fairly common and most typical in West Portland while across the river in East

Portland, the typical *angusticollis* is to be found. It extends south along the coast almost to Coose County where it is gradually replaced by the subspecies *longipes*. In the Coast Range Mountains of middle Oregon and some portions of the coastal areas, there are to be found specimens which appear to be *nigripennis* but have the male tarsi like those of *longipes*. I am placing these with the latter though they are in fact intermediates.

Scaphinotus (*Stenocantharis*) *angusticollis longipes* (Casey)

(Plate I, Figures 5, 8)

Pemphus longipes Casey, Ann. N. Y. Acad. Sci., IX, p. 339, 1897.

Scaphinotus (*Pemphus*) *angusticollis* var. *longipes* Roesch., Ann. Mus. Nat. Hung., V, p. 167, 1907.

This subspecies is in general somewhat larger and more rangy in appearance than the preceding, has the prothorax more narrowed, therefore seems longer than broad, is frequently feebly angulate laterally, and has the elytral intervals rarely regular even in the males, the disk being as a rule more or less irregularly punctate with the sides generally granular, and with several of the intervals well defined and at the same time well spaced. The male front tarsi have the first segment with a shank fully one-half its length, the papillose area thus covering only the apical half of its undersurface.

The typical specimens are confined to the redwood belt of Humboldt Co., Calif., but others, many of which might be called intermediates between these and *nigripennis,* extend well into southwestern Oregon. A single male specimen which is considerably narrower and more delicately formed than usual, is in our collection. It was collected in the Trinity Alps of Trinity Co., Calif., on June 31, by G. Dallas Hanna. This location is many miles to the east of the redwood belt.

Scaphinotus (*Stenocantharis*) *angusticollis velutinus* (Menetries)

(Plate I, Figures 2, 3, 9)

Cychrus velutinus Menetr., Bull. Acad. Petersb., II, p. 53, 1844.

Cychrus angusticollis var. *velutinus* Horn, Trans. Ann. Ent. Soc., VII, p. 175, 1878 (Part.).

Scaphinotus (*Pemphus*) *angusticollis* var. *velutinus* Roesch., Ann. Mus. Nat. Hung., V, p. 168, 1907.

Pemphus opacus Casey, Ent. News, X, p. 97, 1899.

This subspecies is much larger than any of the preceding sub-

species, especially the females, is of a dull black color, with a velvety appearance and with the marginal groove of the elytra of a deep blue color. The prothorax is widely dilated in front, particularly in the females, the sides more or less strongly sinuated behind, the elytra quite convex and globose, and the sculpturing very similar to that of *longipes.* The males have the shank of the first segment of the front tarsi, almost three-fourths the length of the segment and the papillose area confined to a triangular space on the underside at the apical fourth.

It is distributed throughout the old redwood areas of northwestern Sonoma and Mendocino Counties in California. Menetries' type probably came from some place to the east of the old Russian Fort Ross, to the north of the Russian River, in Sonoma County. Casey's specimens of *opacus* were sent to him by L. E. Ricksecker as from Sonoma Co., no doubt from a locality close to the original type locality of *velutinus.* In my series of forty specimens, I have some from near Fort Ross, Annapolis and other places in Sonoma County, including several from L. E. Ricksecker of the same lot from whence came the type of *opacus,* as well as others from the Noyo River, ten miles inland from Fort Bragg, these last taken by myself. I have never seen a specimen collected along the Russian River or south of it, and none from Humboldt County. At present there is a break in the redwood belt near the boundary of Humboldt and Mendocino and this no doubt definitely isolated *velutinus* from *longipes.*

Scaphinotus (*Brennus*) *johnsoni* Van Dyke

Scaphinotus (*Brennus*) *johnsoni* Van Dyke, Pan-Pacific Ent., I, p. 3, 1924.

Since the original description was made which was based upon an imperfect female specimen, I have had an opportunity to study three other specimens of the rare species, two males and a female. As stated in the introduction of this paper, I believe that *johnsoni* is more or less of an intermediate between the subgenus *Stenocantharis* and *Brennus,* though it possesses the two most distinctive diagnostic features of *Brennus:* the anterior side of front femora with setigerous punctures beneath and the lacinae of the maxillae furnished with silky hairs or setae rather than spines. These two characters in *johnsoni,* are, however, much less pronounced than they are in more typical *Brennus.*

This species looks much like a small *angusticollis* and might easily be confused with that. It has the same subopaque, velvety

appearance, the prolonged head and but moderately convex eyes; a much flattened and distinctly wrinkly pronotum of a dull black or bluish black color, moderately to well dilated in front with the sides behind straight and convergent to the narrowed base, rather than arcuate; the elytra long and more or less elliptical in shape like *angusticollis* rather than cordate as in more typical *Brennus* like *marginatus,* of a deep violet color and with eighteen regularly impressed striae as in *angusticollis* in contrast to the usual fourteen of the smaller species of *Brennus;* and with very long delicate legs as in all of the members of the subgenus *Stenocantharis.* In *Brennus,* the legs are generally stouter. The striae in *johnsoni* are also more distinctly and deeply impressed. In the males of the latter, the anterior tarsi are but narrowly dilated and with the papillose areas of the plantar surface much as they are in *velutinus* (Pl. I, Fig. 9) and *Brennus marginatus* Fisch. All of the members of *Stenocantharis* are more or less arboreal while *johnsoni* like all of *Brennus* is strictly terrestrial as far as I have observed. The latter is also one of the most distinct and isolated species of *Brennus* as far as distribution is concerned, for it is confined to the northwestern part of the Olympic Peninsula of Washington. The only other *Brennus* which is similarly isolated, both structurally and geographically is *Brennus cordatus* Lec., a small species confined to the extreme coast range mountains of middle California, Marin, San Mateo, Santa Cruz and Monterey Counties. In Csiki's catalogue, *johnsoni* is wrongly listed in the subgenus *Scaphinotus* instead of *Brennus* where is properly belongs as I originally stated.

Scaphinotus, subgenus *Neocychrus* Roeschke

The subgenus *Neocychrus* was established by Roeschke[5] in 1907, to include two species: *Scaphinotus angulatus* (Harris) and *Scaphinotus behrensi* Roeschke. In 1924, I[6] added a third species, *Scaphinotus longiceps* Van Dyke as well as described a new variety of *angulatus* and at the same time gave a synoptic table for the subgenus. In Csiki's catalogue[7] of the Carabidae: Carabinae II in Junk's Coleoptorum Catalogus, Csiki correctly lists my variety *maritimus* as a variety of *angulatus* as I had done but he incorrectly places my *longipes* (p. 323) as a member of the subgenus *Brennus,* in spite of the fact that I described it as a member of the

[5] Ann. Mus. Nat. Hung., V, pp. 117, 197, 1907.

[6] Pan-Pacific Entom., I, p. 5, 1924.

[7] Coleoptorum Catalogus (Junk), Pars 92, p. 326, 1927.

subgenus *Neocychrus* and gave a synoptic table with this species as a member of the subgenus. Csiki's faulty citation is also indicated by the fact that he wrongly places my *johnsoni* as I have previously indicated.

This subgenus differs from *Stenocantharis* and *Brennus* by having the genae strongly dilated in the form of a plate which is undivided or incised and which projects beyond the eyes; by having the clypeus with lateral grooves; and the anterior tarsi of the males not dilated but simple as in the case of the females, though with several of the segments slightly papillose beneath. In all other regards it has the same combination of characters as mentioned in the discussion of *Stenocantharis*. Though small in numbers, *Neocychrus* is one of the most distinct of the subgenera of *Scaphinotus*.

All the species, like those of *Stenocantharis*, are confined to the heavily timbered and damp coastal regions of northwestern North America. They do not extend into Alaska but range as far as known from Vancouver Island south through western Washington, Oregon and northwestern California to middle Sonoma County, which is likewise the southern boundary of *Stenocantharis* as well as of many other typical Vancouveran insects. While the members of *Stenocantharis* are true timber beetles, coursing over the fallen timber and underbrush, climbing for considerable distances up the trunks of the trees, as well as wandering over the floor of the forest, the members of *Neocychrus* are more strictly terrestrial. All specimens collected have been taken from beneath such cover as old logs, forest litter or by breaking up rotting tree trunks. While the species of *Stenocantharis* are more or less gregarious or at least fairly numerous in their allotted habitats, the species of the other subgenus are to a great extent solitary, therefore picked up only occasionally and in consequence rare in collections.

Key to Species and Subspecies[8]

1. Head about twice as long as broad, front more or less cristate; prothorax considerably broader than head 2
   Head three times as long as broad, front merely convex, not cristate; prothorax small, but little wider than head..... *longiceps*
2. Each elytron with fourteen complete, more or less regular intervals, the striae also regular and finely punctured; the frontal crista of head obtuse; the anterior marginal line of pronotum more or less obsolete at center 3

[8] Key revised from my former key published in the Pan-Pacific Ent., I, p. 6, 1924.

Each elytron with the intervals more or less broken up or contorted at the sides and apex; the frontal crista generally acute; the anterior marginal line of pronotum usually complete and well impressed; eltyra dark violaceous 4

3. Elytra brilliantly metallic, cupreous or violaceous ..... *angulatus*
   Entire insect a shining black ..... *angulatus* subspecies *maritimus*
4. Elytra with the intervals on the outer half and posterior declivity very irregular, longitudinally and transversely divided and contorted, strial punctures fine ..... *behrensi*
   Elytra with the intervals more or less regular, distinctly crenulated, and with only a few lateral ones longitudinally divided, though all are much divided and irregular on the declivity, strial punctures large and well impressed ..... *behrensi* subspecies *malkini*

Scaphinotus (*Neocychrus*) *angulatus* (Harris)

(Plate II, Figure 11)

Cychrus angulatus Harris, Boston Jour. Nat. Hist., II, p. 200, 1839.

Cychrus angulatus Le Conte, Trans. Am. Ent. Soc., II, p. 60, 1868; Ann. Mag. Nat. Hist., (4) IV, p. 372, 1869.

Cychrus angulatus Horn, Trans. Ann. Ent. Soc., VII, p. 185, 1878.

Scaphinotus (*Neocychrus*) *angulatus* Roeschke, Ann. Mus. Nat. Hung., V, pp. 124, 198, 1907.

Scaphinotus (*Neocychrus*) *angulatus* Van Dyke, Pan-Pacific Ent., I, p. 6, 1924.

Elongate, narrow, black and shining, the elytra a brilliant metallic violaceous or copper color. Head twice as long as broad, mandibles straight, long and narrow, genae laterally expanded, uncleft, with a prominent angular tubercle in front of eyes, front with a broad, obtusely elevated carina at middle, the supraorbital-antennal ridge prominent and acutely elevated, most developed over the antennae; antennae long, reaching the middle of elytra; eyes but slightly prominent; neck short and almost as broad as across the eyes. Prothorax slightly broader than long, one-fourth broader than head, feebly emarginate in front, the sides straight and divergent from apex for one-third of length, with beading generally crenulated, the outer angles quite angulate or feebly rounded and with a setigerous puncture just within the margin, posteriorly the sides less straight and convergent to about 1 mm. in front of

base, thence straight and parallel to base, the hind angles right-angled; the disk with median longitudinal line and anterior and posterior transverse impressions well defined, the areas on either side of median line quite convex, smooth and shining, the apical marginal line well-impressed at sides but generally vague at middle, the lateral margin narrow and uniform. Propleura quite easily seen from above. Scutellum narrow and transverse. Elytra elongate elliptical, the lateral margin narrow throughout; disk moderately convex with fourteen narrow, convex, feebly crenulated and more or less regularly placed intervals and several more or less obsolete ones near lateral margin, and all inclined to be interrupted towards apex, the striae regularly and quite deeply impressed and finely punctured. Beneath smooth and shining; the prosternum margined and inflexed at apex, the posterior coxal plate with anterior and posterior setae, the posterior coxae likewise with two setae and the abdomen with ambulatory setae. Length 20 mm., breadth 7 mm.

Males with terminal segments of both labial and maxillary palpi dilated and spoon-shaped as usual; the anterior tarsi not dilated but the second, third and fourth segments beneath with a small squamous patch at the apex of each.

This species was first collected by J. K. Townsend, the companion of the botanist Nuttall, on his trip to the Columbia River, in 1834–1835. It was described by Harris as from Oregon though Townsend collected at Fort Vancouver, Washington, then a part of old Oregon, as well as near what is now Portland and along the Willamette River south of Portland. This the typical phase of the species is listed from Vancouver Island, western Washington east of Puget Sound and Portland, Oregon. Numbers were at one time found by Professor O. B. Johnson near Seattle though it is quite rare in collections.

Scaphinotus (*Neocychrus*) *angulatus* subspecies *maritimus* Van Dyke

Scaphinotus (*Neocychrus*) *angulatus* subspecies *maritimus* Van Dyke, Pan-Pacific Ent., I, p. 506, 1924.

This subspecies is but a color phase of the preceding though all specimens found within its area of distribution are similar. It is entirely black and shining and seems to be confined to the Olympic Peninsula of Washnigton. My type, I collected near Port Angeles. Others seen, are from Melbourne, Hoquiam and the Olympic National Forest. It is also very rare.

Scaphinotus (*Neocychrus*) *behrensi* Roeschke

(Plate II, Figure 13)

Scaphinotus (*Neocychrus*) *behrensi* Roesch., Ann. Mus. Nat. Hung., V, pp. 124, 199, 1907.

Scaphinotus (*Neocychrus*) *behrensi* Van Dyke, Pan-Pacific Ent., I, p. 6, 1924.

This species is in general somewhat similar to *angulatus* but it is as a rule smaller, has the elytra a deep violaceous color; the frontal crista usually quite acute; the pronotum with fine transverse wrinkles, the anterior or marginal line deeply impressed throughout, the outer angles of the prothorax more uniformly rounded and the lateral margin in front always quite definitely crenulate; and the elytra with the lateral margin a bit more widely elevated in front and the greater portion of the elytral intervals outwardly and posteriorly very much broken up and contorted. The male tarsi are similar to those of *angulatus*. Length 16–20 mm., breadth 6–7 mm.

It is very variable as to size, the character of the frontal crista, and the degree to which the elytral intervals are interrupted or contorted as well as to the character of the strial punctuation. In the more northern specimens, there is an approach to the subspecies *malkini*, where the intervals are inclined to be less interrupted and as in a specimen from Crescent City, Calif., where the strial punctures are coarser, thus producing a greater degree of crenulation in the intervals. The more southern specimens are the more typical, and have the elytral intervals more extensively interrupted.

The species ranges along the coastal area of California from its northern border, south to northern Sonoma Co., Calif. Roeschke's type, which I have seen, was received from L. E. Ricksecker and was collected in Sonoma Co. I have before me specimens from Crescent City and from the mountains east of Orisk, Humboldt Co. I have not seen any specimens from southern Humboldt Co. or from Mendocino Co. but believe that it must occur there. It is still quite rare.

Scaphinotus (*Neocychrus*) *behrensi* **malkini,** new subspecies

(Plate II, Figure 14)

Rather large, elongate, black, the elytra subopaque and a very deep violet color. Head with frontal carina acute; the prothorax with anterior marginal line complete and deeply impressed, the outer angles more rounded even than in typical *behrensi* and the crenulations of the sides anteriorly more or

less obsolete; the elytra with most of the intervals very regular and quite convex on the disk, but irregular on the declivity, the exceptional intervals being the ninth, eleventh and thirteenth which are more or less longitudinally divided posteriorly by large, irregularly placed punctures, and the striae deeply impressed, with large punctures which invade the intervals producing a crenulated appearance. Other characters are as in the typical *behrensi.* Length 22 mm., breadth 8 mm.

Holotype male (No. 5345, Mus. C. A. S. Ent.) and allotype female, both collected at Spenser Butte, near Eugene, Oregon, Sept. 21, 1941, by B. Malkin. The allotype will be returned to Mr. Malkin.

This subspecies as shown by the specimens described above is much larger than the typical *behrensi,* larger even than *angulatus,* and more robust. Its peculiar features are the dull elytra, shining in the typical species, the very convex more or less regular, crenulated intervals ,and the deeply impressed, coarsely punctured striae. With these two specimens, I am associating a specimen collected at Myrtle Point, Oregon, June 16, 1914, by myself and another collected at Waldport, Oregon, June 8, 1925, by E. P. Van Duzee. These two while in the main like *malkini* are smaller and in many respects approach *behrensi,* and thus appear to be intermediates. They are also from intermediate territories.

Scaphinotus (*Neocychrus*) *longiceps* Van Dyke

(Plate II, Figure 12)

Scaphinotus (*Neocychrus*) *longiceps* Van Dyke, Pan-Pacific Ent., I, pp. 5, 6, 1924.

Very much elongated, black and shining, the elytra faintly violaceous in strong light. Head narrow, cylindrical, three times as long as broad, one-fourth longer than prothorax and one-half its width, the neck two-fifths entire length of head, front strongly convex, not cristate, and transversely wrinkled, the supraorbital-antennal ridge narrow above the eyes but wide above the antennae, clypeus with deep linear impression at middle, genae moderately prominent, without lateral tubercle beneath scape but with a very small tubercle at its base just in front of eyes; the eyes small and barely convex; antennae long, reaching beyond middle of elytra. Prothorax slightly broader than long, one-half width of elytra, the apex feebly arcuate, front angles projecting, lateral margin fine, sides ob-

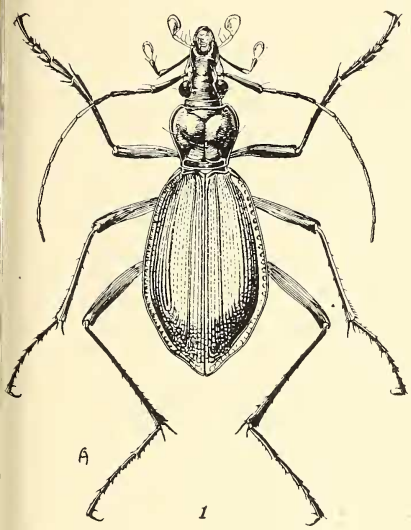
liquely divergent backwards from apex for one-third of length, thence from the rounded angles obliquely convergent to about one mm. in front of base and again divergent, the hind angles therefore acute; disk with median longitudinal line and anterior and posterior impressions well defined, the rest of disk very convex, smooth shining and with vague transverse wrinkles, the apical marginal line distinct at sides but obsolete at middle. Propleura very distinctly seen from above. Scutellum small, transverse. Elytra elongate elliptical, breadth two-thirds of length, moderately convex, finely and evenly margined laterally; disk with fourteen deep and finely punctured striae on each elytron, the intervals convex and feebly crenulated. Beneath quite smooth, posterior coxal plates with anterior and posterior setigerous punctures. Length 19 mm., breadth 8 mm.

Males with anterior tarsi not dilated but with second, third and fourth segments with a small papillose area at the apex of each.

This very distinct and peculiar species is restricted to the heavily timbered redwood areas of Humboldt Co., California. The type was described from a male collected by F. W. Nunenmacher, in the mountains east of Arcata. Two other specimens were collected by myself on July 3, 1931, just south of Orick and I believe that one other specimen has been taken. The species because of its habitat will, no doubt, always remain rare.

Explanation of Plate I

Fig. 1. *Scaphinotus* (*Stenocantharis*) *angusticollis* (Mann.) male.
Fig. 2. *Scaphinotus* (*Stenocantharis*) *angusticollis velutinus* (Menetr.) male.
Fig. 3. Left elytron of *Scaphinotus* (*Stenocantharis*) *angusticollis velutinus* (Menetr.) female.
Fig. 4. Prothorax of *Scaphinotus* (*Stenocantharis*) *angusticollis nigripennis* Roeschke.
Fig. 5. Prothorax of *Scaphinotus* (*Stenocantharis*) *angusticollis longipes* Casey.
Fig. 6. Male front tarsi of *angusticollis* (Mann.)
Fig. 7. Male front tarsi of *angusticollis nigripennis* Roesch.
Fig. 8. Male front tarsi of *angusticollis longipes* (Casey).
Fig. 9. Male front tarsi of *angusticollis velutinus* (Menetr.).
Fig. 10. Male front tarsi of *behrensi* Roeschke.



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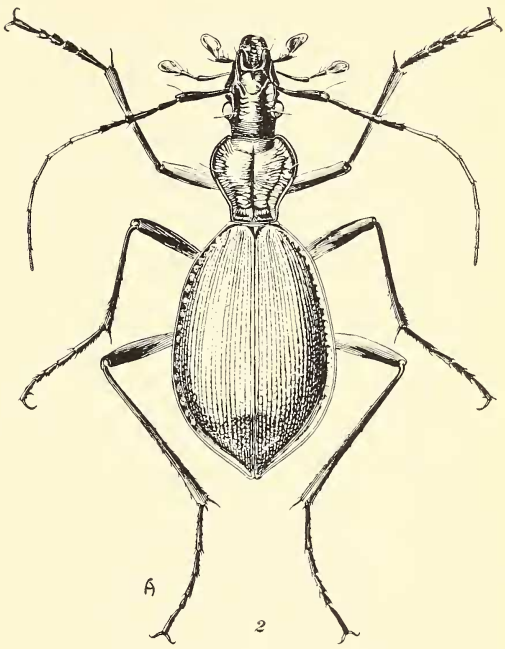

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